Michigan Child Care Matters

DEPARTMENT OF
CONSUMER & INDUSTRY SERVICES
Division of Child Day Care Licensing

BRAIN DEVELOPMENT

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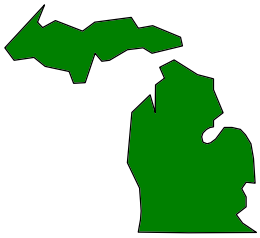

From the Division Director

Education begins at birth! If that concept can be successfully "marketed," legislators, and budget and policy makers will routinely consider the impact of their decisions on children from birth to age five, as well as K-12 when addressing education issues. The general public, the constituents of the above referenced groups, will also begin to demand and expect that children from birth to age five be included and emphasized in education initiatives. I am excited by the growing body of scientific evidence which supports the importance of early brain development for a child's future functioning.

Public and private organizations refer to "teachable moments" which address timing and opportunity to educate and train staff and consumer groups. People are more or less susceptible to learning at various times depending on certain environmental conditions, experiences, and events. This is a concept that can also be applied to children birth to age five.

In a recent article written by Amy Markezich of Stanford University, entitled "Learning Windows and the Child's Brain," she discusses a similar concept referred to as "Learning Windows." She points out that, "There are a series of time periods, or 'windows' in which a child can best learn a particular ability."

It is clear from both social scientists and research in neurology that children, at very early ages, need appropriate environmental stimuli to facilitate later learning and functioning. Opportunities provided infants, toddlers and preschoolers in their homes and in child care will greatly contribute to how well they may do in a certain area later in life. Mrs. Markezich states, for example, "To stimulate more language comprehension, you need to talk a lot with your child, especially during this window. Or, to help the child be more coordinated or active later in life, you should encourage him or her to run and play games, especially during the window to develop gross muscle coordination."

With the scientific community supporting what the early childhood development community has known for years, we can be hopeful that more and more "educational" resources will also support more formal programs for children birth to age five.

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Inside This Issue

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Building Children's Brains

Joan Lessen-Firestone, Ph.D.

Many things can wait.
The child cannot.
Now is the time
His bones are being formed,
His blood is being made,
His mind is being developed.
To him, we cannot say tomorrow.
His name is today.
- Gabriella Mistral

For countless generations, young children have cuddled in their parents' arms, grabbed and explored interesting objects, and bounced and crawled as soon as they were able.

We now know that the "wiring" of a child's brain, unlike his/her skeletal system, is not determined before birth. The brain's wiring occurs in direct response to the environmental input the child receives after s/he is born. The brain of a child who has happily spent his/her first five years hearing and speaking English, playing the violin, and swimming in a lake will wire itself differently from that of the child who contentedly spends those years learning Japanese and Russian, exploring the computer, and playing on swings and teeter-totters. More significant is the fact that these two children's brains will both look and perform very differently from that of a child who spent his/her first years in a stress-filled environment without much language, much stimulation, or much nurturing.

By the time children enter kindergarten, a great deal of the emotional and intellectual wiring of their brains has been set. Whether children are on a path leading to academic success and positive social behavior or to school failure and violence is determined largely by the manner in which this wiring has occurred. For the first time, we now understand how and why this happens.

BRAIN STEM

The brain stem is at the base of the brain and is the first part of the brain to become active. First, it controls such automatic functions as heartbeat and breathing, which, for the child to live must operate from the moment of birth. Second, it is the area associated with "fight or flight". Whenever the child feels threatened or fearful, s/he will revert to functioning in this area of the brain and act quickly, without thought or planning, to survive.

CEREBELLUM

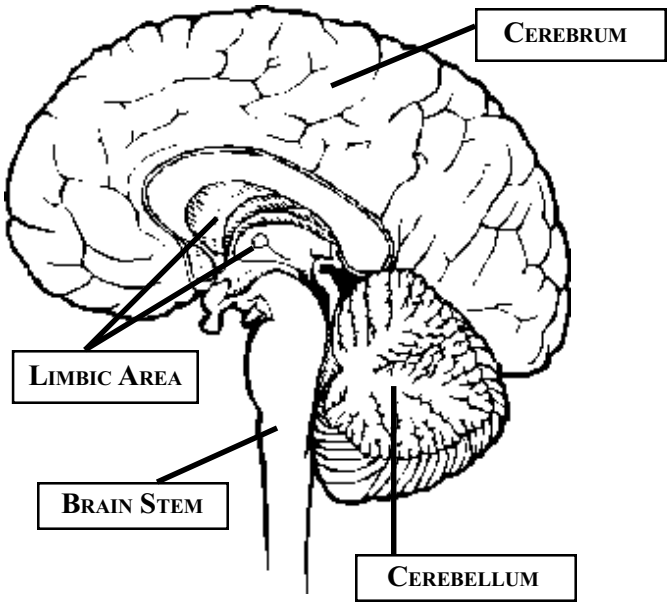
Above the brain stem is the cerebellum, which is associated with movement. When young children do not move and exercise regularly, the connections are weaker than they otherwise would be, and thinking and focus suffer.

LIMBIC

The *limbic* area, or emotional center, of the brain is next. These substances circulate throughout the body, affecting how we feel and act.

CEREBRUM

The *cerebrum* is the highest part of the brain and deals with thought processes. This is the area in which abstract thought occurs. It is not fully developed until children are about eight years old. The other parts of the cerebrum, which are connected to sensory input, develop earlier.



NEURONS

The important cells in the cortex are neurons. All 100 billion neurons that an individual ever will possess are present in the brain at birth. As infants begin to receive appropriate stimulation-stimulation that is sensory, novel and challenging, such as the sight and sound of a new rattle-the neurons begin to branch out. The more communication that occurs, the more branching that occurs, and the denser the forest of neurons becomes.

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BIRTH TO THREE: NEURONS BRANCH AND CONNECT

It is during the first three years of life that brain growth occurs most quickly and easily: Multitudes of new connections are made every day.

THREE TO NINE: CONNECTIONS CONSOLIDATE

It is, in fact, during this time-from about three to nine-that the brain uses the most energy in its work. Almost 50 percent of the calories that young children consume are used to support this intense brain activity, much of which has to do with consolidating the growth of neural pathways. The most connections that are made, the most possibilities that exist.

STRESS IS DEVASTATING

The remarkable growth and development of the neural cortex during the earliest years of life can occur only when a child feels emotionally secure in warm, stable relationships. When young children are stressed, fearful, or insecure, the limbic (emotional) area of the brain actually prevents learning from occurring.

Whenever a child feels stressed or frightened, a structure in the limbic system responds by secreting cortisol into the bloodstream. This circulates through the body and washes over the neural cortex, where it prevents neural connections from being formed and strengthened. Even if excellent opportunities for stimulation and learning are present in the environment, children who are stressed cannot take advantage of them to develop their brains. Unable to use the higher, thinking part of the brain, children revert to functioning in the lower area of the brain stem and use the survival mechanisms of fight to cope with their situation. It is only when the period of stress ends, and children again feel secure, that learning and higher-level thought processes can resume.

The relationship among fear, cortisol, and learning exists throughout life. Even adults with mature coping skills cannot learn or even think clearly when under too much stress. Infants, because they are dependent on others to fulfill their every need, are much more likely than individuals or any other age to frequently feel panic or fear.

If children live under stressful conditions for significant periods of time in their first two years, the results are disastrous. For it is during this time that the emotional center of the brain is being refined, and its entire developmental course is altered when it experiences frequent high levels of stress and the corresponding high levels of cortisol. Repeated exposure to a great deal of cortisol programs the child's brain to expect, like, and even seek situations that will lead to the release of cortisol. This happens in much the same way that children who live in a home where food is highly salted learn to prefer it that way. Children who become accustomed to high cortisol begin to live in the brain stem, rather than the thinking cortex, and view each interaction as one that threatens their survival. The teacher who is reaching out to them is not doing so to give a welcoming pat but an aggressive hit or shove. The child, without thinking, immediately responds by hitting the teacher first or running away. It is quite possible that the tremendous increase in seemingly random acts of violence in our society is related to the increased number of children responding to high levels of early stress and fear by living in their brain stems. ❖

Reprinted with permission. "Ready to Learn Summit," September 1999.

From the Division Director - *continued from page 1*

Regardless of what the future holds politically and fiscally for early childhood programs, child care providers can foster stimulation, during a child's "learning window," and contribute significantly to her future development by implementing a daily program which offers opportunities to grow physically, socially, emotionally, and intellectually. What a great impact you can have on the 350,000 children in child care in Michigan for Michigan's future!

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Fight or Flight Responses in Young Children: How Can Caregivers Help?

Lija Ditmar, Private Therapist
Traverse City

What do we mean by "Fight or Flight" responses? This is a term that you might have learned about in high school science. It refers to the physiological response of an animal when it is confronted with danger that is a threat to its life. For example, when you corner a raccoon in your garage, it will either fight like crazy, or run like mad to survive. The raccoon does not have any other alternatives. When humans perceive they are in a life-threatening situation their response will also be "fight or flight." Some of the signals of this "fight or flight" state are dilated pupils, body tension, shallow breathing, or sweaty palms.

We know that humans have a "primitive" instinctive part of their brain, and another more developed section that is capable of higher thought processes, such as cognitive functioning and problem solving. Unfortunately, the primitive brain is not able to communicate with the more developed human brain. We are stuck with only, "fight like crazy or run like mad." When a person is in the fight mode, the behavior may be one of rage. Rage and anger are frequent complaints that caregivers have about some children, and are reasons that they may be asked to leave a day care setting.

Whether a child will become excitable and experience heightened arousal in the form of "fight or flight," and which option he will choose, appears to be determined by the personality of the child, his nervous system, previous experiences with traumatic or life threatening events, and stressful environments. Settings that are violent, noisy, chaotic, harsh, and unpredictable are likely to elicit the "fight or flight" response in even the most laid back, easy-going child.

Since environmental stresses may increase the probability of rage behaviors, the caregiver needs to assess a child's overall stress level.

- Is he sick, tired, complaining of headaches, or stomach aches?
- Is he irritable when he arrives; does he have less ability to concentrate or tolerate frustration than normal?
- Are there changes in the home environment - divorce, parenting changes, illness in the family?
- Is the primary caregiver stressed by situations which limits her emotional availability?

If these factors are present, caregivers need to be alert, anticipate problems, and intervene before a child is out of control. This is particularly true if the child has a history of rage behaviors.

Teaching self-awareness and verbal communication skills on a daily basis will help children manage their behavior. Caregivers can teach children to notice early warning signals of stresses that may cause them to fall into the "fight or flight" mode. They can be taught to notice their breathing; shallow breathing indicates stress. Teaching deep breathing is helpful. This can be done through exercises and games. For example, using a straw and a feather, children can blow the feather across a table, or imagine that there is a balloon in their stomachs and "make the balloon get big and little" are games that teach children to breathe more deeply.

Using relaxation exercises in the form of games, like, "Be a pencil, be a feather, be rain, be snow," repeated several times in random order, followed by a discussion of what feels more comfortable, teaches children to notice body tension and relaxation. Using the same examples, children can monitor whether they are feeling like a pencil/feather, rain/snow, (i.e. tense or relaxed) at other times. This can be useful information for the adults and the children managing stress levels.

Adults can get quick information in other areas

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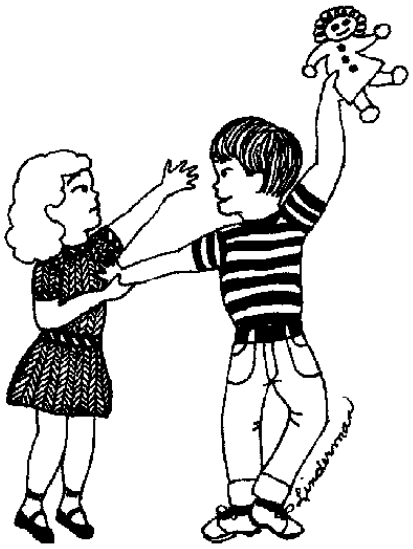
so that they can help children make positive choices and changes. Checking in with their heart (is it pounding fast and hard?) increases awareness of stress overload. The adult begins by gently touching the child's chest and calmly saying, "Your heart is beating very hard and fast; it needs to slow down; can you make it slow down?" Then asking the child to continue to notice his heartbeats, increases the child's awareness. In this way, the child is encouraged to do self-monitoring in the future.



Recently, I visited a young mother and her 2 ½ year old son. He had been aggressive and acting out at home and day care. We discussed how anger was a secondary response to feeling frustrated, cheated, unloved, bored, worried, or scared. During our "play time," I gave him feedback about anger, frustration, and other feelings. By the time I left, he was running off to his room saying, "I am frustrated," instead of his typical "I am mad," and yelling and hitting.

We all teach children about colors, shapes, numbers, and letters. But it is less likely that we teach children a "feeling vocabulary" in the same diligent way. Sitting on the floor and commenting on their behaviors in a "play by play manner" ("You are putting one block on top of the other.") lets the children know you are interested in what they are doing. As a caregiver, you can also observe and verbalize feelings that you notice. This will teach children about their feeling states. "You are working hard; you are proud of yourself; you are concentrating; you are getting frustrated, or annoyed," gives children good information.

Include a feeling vocabulary in your own experiences with a child. "I am sad today. I wanted to go outside and play but it is raining. So, I will stay inside and make a road, using carpet squares. I can walk, hop, jump, and that will be fun." This models talking about feelings and changing them. This also teaches choice-making and creative problem-solving.

Providing feedback to children can be very helpful in detouring the angry rage behaviors. "You look angry or you are sad because you wanted that toy," can lead into the caregiver saying, "You can use your words and say, 'May I have a turn when you are done?' or 'I feel sad when I can't have a turn.'" Adults can then respond by staying calm and saying, "You showed me how you can use your words; show me how you stay calm and patient waiting." When they succeed, say, "You know how to use words and how to stay calm and patient." These interventions increase activity in the language part of the brain, keep the child in a more cognitive mode, and reduce the probability of rages.

Once children are in a rage state, they cannot control themselves or think. A safe place away from others, such as a tent or quiet corner, can help them to become calm and regain control of their behavior. Intervene only when they are hurting themselves or others, or if they are doing serious damage to property. Calmness and gentle holding, after they have had some distance from the challenging situation, will help. Talking logically and problem solving when children are enraged will escalate the out-of-control behaviors. Often, the children feel embarrassed or humiliated after a bout of out-of-control behaviors; they will need comforting and reassurance, and help reentering the group.

Children who are repeatedly rageful, despite the above interventions, may need medication to help them cope and manage their anger. This is particularly true of school-aged children who have developed patterns of rage behaviors. A specifically trained mental health counselor or child psychiatrist can help.

In summary, "fight or flight" behaviors are the result of perceived threat to one's life and vary depending upon the person's personality, nervous system, temperament, previous experiences with trauma, and type of environment. The individual is UNABLE to "think." There are things that caregivers can do to help young children. Provide a safe environment where children feel cared about and listened to. Watch for stress reactions; teach early warning signals peculiar to each child; teach self-monitoring; and give them feedback. Teach a feeling vocabulary and stay involved in their activities; notice ongoing stress levels for children who have a history of rage behaviors. Intervene before the behaviors escalate, and model problem solving skills. Discuss your concerns with parents. Consider consultation with your day care licensing consultant if needed. ❖

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Toddlers are Independent, Not Difficut!

Carolyn King, Area Manager
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Washtenaw County

Toddlers. What does that word conjure up for you? Tantrums or the emergence of personhood? Trouble or the excitement of a little one mastering his world?

How you view this stage of child development will greatly determine how well you handle this age group. Recognizing toddlerhood as the infant's struggle between dependence and independence is the key to understanding the toddler's challenging behavior. Knowing that a toddler has a driving need to master new skills will help you to plan an environment which will provide opportunities for the toddler to experience and learn. Understanding that the toddler's sense of self is emerging demands a curriculum which will emphasize positive interactions and provide opportunities for the toddler to safely test limits and make choices.

Toddlers are not trying to be difficult. They are learning to be independent people.

Toddlerhood typically begins as the infant begins to walk and talk. Children between the ages of 12 months and 36 months are usually included in this group. Toddlers, like infants, are learning from their experiences. With movement and language come greater opportunities for new experiences. Still totally dependent on adults for care and survival, the toddler pushes for the chance to do it himself, to declare that an object is mine, and to say no. Through this process he learns that he is a separate human being, capable and autonomous. A toddler who successfully masters this stage of development will emerge with strong self-esteem and an enhanced ability to share, cooperate, and function in a group.

These skills do not come easily and will need the assistance of patient, caring and knowledgeable adults. Toddler tantrums are the understandable result of the toddler's frustration as he works to learn new skills. The teacher can help the toddler learn words to describe his feelings. With help he can learn to say "Stop that" or "I want that toy" rather that hitting his friend or dissolving into tears.

The toddler learns through opportunities for trial and error, repetition, imitation, and experimentation. The toddler teacher sets the stage for the toddler to form concepts from his experience.

Here are some ideas which will help you develop a program which will meet the developmental needs of this age group:

1. Every toddler age two and one half and under must have a primary caregiver assigned. This trusted adult is the most important person in the child care setting for she will know her assigned child well and through sensitive, responsive caregiving provide the secure base from which a toddler can learn and explore.

2. Establish routines so that the toddler can predict what will happen in his day. Rituals for entering and leaving day care, preparing to eat, preparing to nap, and cleaning up the play area all give the toddler a sense of control over his world. These rituals might include songs or chants to warn that a transition is coming. "Soon we're going to clean up."

3. Use toileting, handwashing and eating as opportunities for learning. Allow the toddler to handle these routines himself as much as possible. Use words to describe what is occurring to enhance language skills. Take delight in the toddler's ability to pour from a small pitcher, pull his pants up and down, put on his coat, and throw away his napkin or plate.

4. Allow toddlers to make choices whenever possible. Putting toys at eye level allows him to choose his activity. Choices must be real ones that you are really willing to allow.

5. Have duplicate toys which will allow toddlers to play alone or beside one another. Sharing and cooperative play is too hard for the young toddler and should not be expected.

6. Set limits which are positively enforced. The toddler will test limits as part of his attempt to assert his sense of self. Gently but firmly enforce the rules.

7. Toddlers' receptive language skills develop before the ability to express themselves well with words. Use books, songs, chants, pictures, and simple finger plays to develop expressive language. First books might include pictures of the toddler's own family and pets. The teacher should describe events, attach words to feelings and use words to name items in the environment. As the ability to use words increases, the number of temper tantrums borne of frustration will decrease.

8. Avoid power struggles. If you ask a toddler if he wants to clean up, you are likely to get a resounding, "No!" Saying "Let's all clean up now!" or "Would you like to pick up the animals or the blocks?" will get a more cooperative response.

9. Keep group times short (five minutes) if you

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Does Brain Development Stop After Three Years of Age?

Nurturing the 3-9 Year Old

Alice Whiren,
Michigan State University

After infancy, children experience a pattern of accelerated growth alternated with periods of more gradual growth in approximately two year intervals (2-4, 6-8, 10-12, and 14-16 years of age). During the plateau periods, children seem to consolidate gains and accrue information and skill at a slower rate.

If children have supportive and stimulating experiences early in life, they are better prepared to take advantage of future learning opportunities. Human beings are not "finished" quickly. Children are designed to mature slowly, to learn gradually, and develop bit by bit throughout childhood. This generally lasts 16-20 years!

In the first three years, youngsters develop upright mobility and skilled hand use, the basics of language, attachment to an adult, the ability to explore and inquire into their surroundings and basic self care skills such as eating and eliminating independently. All of this learning is the stepping off place for the preschool period.

Three to five year olds are excited hands-on learners who are intrepid explorers of their social and physical worlds. If they have exposure to music and are encouraged to sing and participate in rhythm and dance, their musical intelligence and talent are supported. Given opportunities to learn about the art media, blocks, and manipulatives they develop concepts of aesthetics and spatial relations. When they sort and organize materials of all kinds they are developing the fundamental skills of science and mathematics. The fundamental motor skills (throw, catch, run, hop, strike) must be learned during the preschool years.

One of the most important tasks of the preschool period is learning to relate to adults who are not their parents and to other children. Youngsters must learn to practice self control, which is never easy. Language is both a tool for this effort and an area of development where much change occurs. At three years of age, a child may know only 2,000 words, but at five, most children use more than 10,000 words including those that express affect.

The great delight of the six to nine year old is that many of the foundation skills and talents are in place and children expand their interests and deepen their knowledge base. For example, the sorting behaviors seen in the preschool children take the shape of making collections of things for the early school age child. Children who once constructed with blocks become quite skilled with hammer and saw. Art work becomes more representational. Children use this form of communication across time and space through reading. Singing and playing music becomes more varied. The fundamental motor skills are combined together to play games such as dodgeball and jacks. Much of the work of the six to nine year old is the accumulation of knowledge and the development of literacy and numeration skills. Children in this age group can do more activities and can work and play with increasing independence.

Understanding the periods and timing of rapid brain growth is useful in that there are periods of great accomplishment and achievement of children. High quality caregiving requires a balanced approach of stimulation, encouragement, support and acceptance. It has qualities of activity and of rest. Every single day of each child's life is a significant day and cannot be redone.

What are the hallmarks of effective caregiving?

Caregivers must continue to:

- Provide a safe and healthy environment where children can thrive.
- Gradually alter expectations of children as they mature so that they are both supported and challenged.
- Provide encouragement when children try to function more independently while still engaging in careful supervision of their activities.
- Teach strategies for interpersonal communication and coach older children as they attempt to

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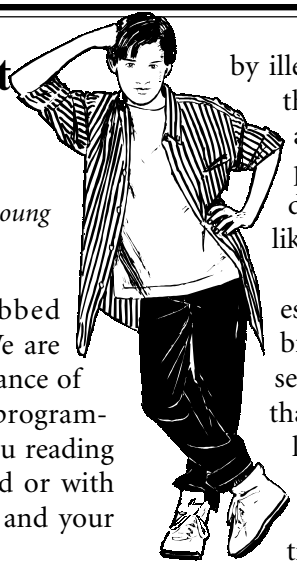
Teen Brain Development

Diane Gillham, Licensing Consultant
Traverse City

What brain? I sometimes wonder if my own two young teens still have one!



Infant brain development has grabbed everyone's attention in recent months. We are learning more and more about the importance of early stimulation and quality child care programming for very young children. Most of you reading this article are working in early childhood or with school age children. They are wonderful and your days are rewarding!

Then they turn into teenagers! We all have seen the personality and behavior changes, and wondered what happened to our sweet children. Now there is research evolving that may help to explain the reasons for their sometimes irrational, impulsive actions, and may help us to understand and be more accepting of these strange young people.

According to research reported in the August 9, 1999 issue of U.S. News & World Report, teen brains may not be fully developed until their 20's. The prefrontal cortex, located just behind the forehead, undergoes a growth spurt around age 9-10. Neurons begin to develop numerous new connections, or synapses, between different areas of the brain. Around age 12, areas that are not being used begin to die off, a process known as "pruning," that is not completed until adulthood.

"Researchers suspect that the excess of synapses means the young adolescent mind can't easily keep track of multiple thoughts .....(or) gain instant access to critical memories and emotions that allow grownups to make judicious decisions." This may make it difficult for young teens to organize and prioritize multiple tasks. The teen brain may also be incapable of controlling emotional responses that originate in the limbic system, deep within the brain, and are moderated by this still-developing pre-frontal cortex.

Researchers believe that several factors may account for the risky, thrill-seeking behavior exhibited by so many teenagers. Although up to 60% of a teen's tendency to act impulsively may be genetic, changes are also occurring in the teen brain. New experiences, especially those with a degree of danger or thrill, may stimulate a set of neurons that link emotional centers to other parts of the brain, producing feelings of intense pleasure. This same set of neurons is affected by illegal drugs and release dopamine, one of the brain chemicals responsible for arousal and motivation. During adolescence it appears that serotonin levels in the brain also decline temporarily, making teens more likely to act impulsively.

Sex hormones not only increase interest in "you know what" but also change the brain's composition. Testosterone in both sexes swells the amygdala (more so in boys than girls), an almond-shaped part of the limbic system in the brain that generates feelings of fear and anger. This may explain the increased interest in violent activities and aggressive nature seen in many young males. Estrogen levels also increase which leads to sudden growth of the hippocampus, responsible for processing memory. The hippocampus generally is proportionately larger in girls than boys. These hormones combine to produce the moodiness and interest in the opposite sex that is so common in teenagers.

Finally, myelin sheaths, or coatings of white matter, develop around the nerves in the brain. The myelin sheaths act like insulation, allowing electrical impulses to travel down a nerve faster and more efficiently. This process begins earlier in girls than boys and is not completed until the early 20's, which may help to explain why teenage girls seem more emotionally mature than boys.

One more noteworthy bit of research relates to those teenagers who like to sleep away the weekends. It has been found that teenagers need as much as or more sleep than they did as when they were children, an average of nine hours 15 minutes per night. Hormones critical to growth and sexual maturation are released during sleep. In addition, teens who must get up early in the morning, before their biological clock awakens them, may miss out on the period of sleep that enhances memory and learning. Without enough of this REM (rapid eye movement) sleep, people become cranky and depressed, perform poorly on tests of reaction time, and may have impairment of their memory and judgment. Research has proven that teens who get the most sleep consistently perform better at school.

Although it may seem much longer, the teen years only last for seven years. With patience, continued guidance, a sense of humor, and love most teens evolve into wonderful, responsible adults. And the adults in their lives survive with some interesting stories and a lot more grey hair! ❖

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Nutrition and the Brain

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Association for Child Development

Nutrition headlines have taught us that antioxidants may prevent cancer, a diet low in fat can prevent clogged arteries, and calcium is vital in the prevention of osteoporosis. Until recently, however, "brain food" has received little attention. Thanks to the boom of brain research in the 1990's, we now know that nutrition plays a vital role in brain development. A 1994 report by the Carnegie Corporation stated that inadequate nutrition before birth and in early childhood can seriously interfere with brain development and lead to neurological and behavioral disorders. In a study by Alan Lucas of Britain's Medical Research Council, it was found that "diet during critical periods in early life may be of great importance for our health and performance as adults." Researchers also found that poor nutrition before birth and during the early years lowers IQ's by as much as 15 points or more, increases behavioral problems, and decreases attention span. So what should we feed our children to help their brains make trillions of connections between these cells during the first three years of life?

One important nutrient is fat. While it is true that too much fat in the diet can lead to heart disease, it is a key player in the growth and development of children. That is why the American Academy of Pediatrics does not recommend a low-fat diet for children under the age of two. Doing so can slow growth at a time when growth is at its height. In fact, the brain begins to develop three months after conception, grows faster than any other organ while in the womb—adding 250,000 cells per minute—and doubles in weight during the first two years of life. Fat is a concentrated source of calories—9 calories per gram—which children need approximately 2,200 of daily. Breast milk, infant formula, and whole milk after the first year are excellent sources of fat for infants and toddlers.

Folic acid, a B vitamin, is another nutrient that significantly impacts a child's brain development especially during pregnancy. It helps close the tube which houses the central nervous system. According to the Nutrition Action Health letter (May, 1998), folic acid can prevent half of neural tube birth defects if women start consuming the recommended 400 micrograms shortly before they conceive. This timeframe is important because the neural tube closes 18-26 days after sperm and egg meet. For this reason, the US Food and Drug Administration requires that flours, corn meals, pasta, and rice be fortified with folic acid. In addition to enriched bread and grain products, lentils, dried beans like chickpeas and pinto beans, sunflower seeds, orange juice, spinach, asparagus, and broccoli are good sources of folic acid.

Iron is a mineral necessary for brain growth. Brain cells, as well as the rest of the body, need oxygen to grow properly. The ability of the blood to transport oxygen depends on the iron stored in the body. Blood that is low or lacking in iron cannot do its job and results in slow growth, difficulty thinking and concentrating, and fatigue. Iron deficiency is found in as many as 25% of American children between the ages of 1 and 3. Breast milk, iron-fortified infant formula, lean meat, poultry dried peas and beans, iron-fortified cereal, whole grain or enriched bread, peanut butter, dried fruit, and eggs are sources of iron. Eating vitamin C-rich foods with iron-rich foods helps the body absorb and use the iron more effectively.

Parents and caregivers play an important role in providing nutritious foods to children. The key is variety. When children eat a variety of foods their brains get the nutrients necessary to grow and develop, building the foundation of a lifetime of happiness and success. ❖

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Wiring Musical Circuits in the Brain

Jan Windemuth, Supervising Teacher
Wayne State University

Music naturally delights and moves young children. Even babies can feel its force, both physically and emotionally.

Most young children are quite comfortable with movement. They enjoy rocking, clapping, bouncing, jumping, and dancing to a rhythm or tune. They begin to learn about the world by acting on objects and other people, and they "think with their bodies" well before they think with words. Throughout the early childhood years, children are learning to do new things with their bodies, from staying in their own space to responding to rhythmic or musical stimuli. They are also learning that movement can communicate messages and represent actions.

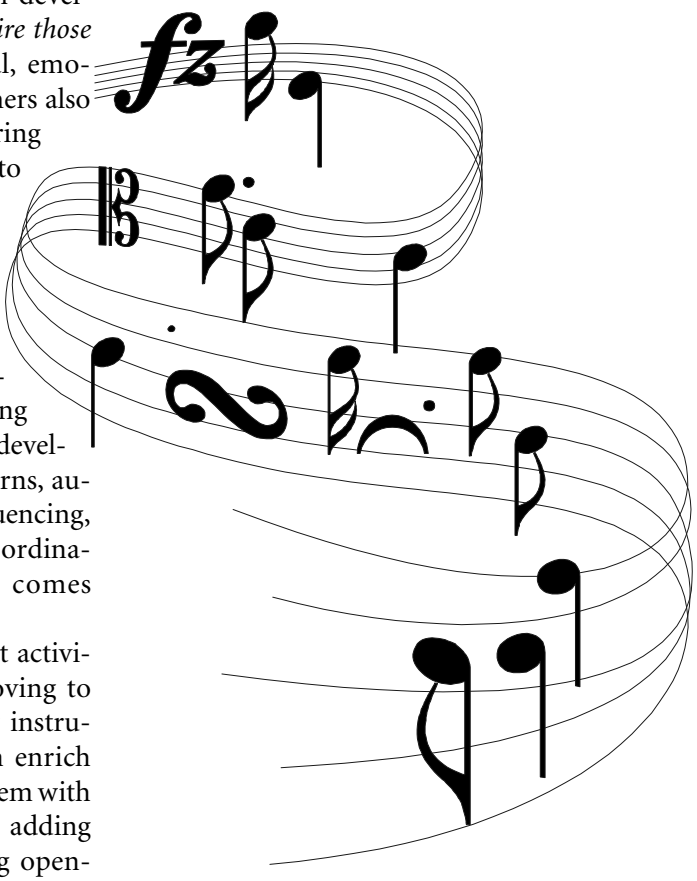
We've learned through research in brain development that children's experiences help to *wire those circuits* that are critical for learning physical, emotional, cognitive and language skills. Researchers also tell us that the window of opportunity for wiring the musical circuits in the brain is from birth to age nine.

Each time a child is stimulated to think, new neural pathways are formed, or existing neural pathways are strengthened. Music is one way to provide that stimulation. Songs, rhymes, fingerplays, musical games, and musical movement opportunities are outstanding neurological experiences. They support the development of listening, vocabulary, speech patterns, auditory discrimination, auditory memory, sequencing, eye-hand coordination, rhythm, balance, coordination, and so much more. And all of this comes wrapped up in a big package of fun!

Children engage in music and movement activities by listening, singing, spontaneously moving to music, imitating movements and by playing instruments. Teachers, caregivers and parents can enrich children's musical experiences by providing them with plenty of opportunities, following their lead, adding variations and challenging them, and asking open-ended questions to stimulate their thinking. All of these strategies are "wires" to connect those musical circuits in the brain.

When children create different sounds with their voices, hand-clapping or with instruments, they explore cause and effect, enhancing their scientific and logical thinking skills. When children sing or do a fingerplay with other children and an adult, they participate cooperatively in a group, enhancing social skills. When children sing a counting rhyme, mathematical skills are enhanced. When children find ways of moving to music, they think creatively to solve problems, enhancing independence and problem-solving skills. When children make up songs, they use words to express ideas, enhancing language skills. All of these experiences give children a feeling of pride and accomplishment, enhancing self-esteem.

Musical experiences should be reserved for a certain time of the day. Music should not continually be played as background sound throughout playtime, because children will tune it out. It deserves a special time and place in the daily routine. Experiences in music should teach children that music is to be noticed, enjoyed and appreciated. ❖



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Forget Computers and Go Out and Play

Dan Hodgins,
Coordinator of the Child Development Program
Mott Community College, Flint

One of the early advertisements for a major hardware manufacturer ran in a number of educational publications and showed an empty schoolroom with a large bank of computers lined up against one wall. On the adjacent wall were several large windows through which could be seen peering, from the outside, a number of elementary-age children, eyeing the computers with their noses pressed against the glass. The caption read, "'Brand name' computers are making recess obsolete."

The ad reveals a great deal not only about marketing zeal and changing attitudes, but also the electronic community's appalling ignorance about the fundamental needs of growing children.

Many parents earnestly believe that children are learning more when they are at a computer than if they were in gym class or playing in the back yard.

But health experts join developmental psychologists in expressing grave concern about this dangerous trend.

Not only is physical activity - preferably outdoors - vital for health, good sleep patterns, getting rid of excess energy and socialization, but the subtle learning and problem solving that takes place in spontaneous play are important for mental development as well.

Researchers have proof of the links between brain function and the positive effects of physical activity. Regular exercise increases the blood supply to the brain, thus giving it a greater oxygen and energy supply for better mental abilities.

In addition, chemicals secreted by the brain during and after exercise enable it to deal better with stress and anxiety.

Scientists also suggest that this type of exercise is most likely to achieve these positive effects in spontaneous play in which children just naturally engage.

We send our children to computer camps so that they may learn how to gain access to information instantaneously, but most of us would never give our children a shovel and gloves and send them to dig weeds for a month so that they develop a sense of what dirt is, how weeds grow and what it takes to get tired.

A relatively new field of brain and movement research suggests the need for body movement (and I don't mean pushing the mouse or touching the screen) to build different forms of intelligence.

Teachers have long remarked that children who have trouble keeping rhythm seem to have difficulties with reading, writing and other skills.

Musical intuition and the sense of musical form are also grounded in the brain's experience of the body during development.

Thus, if you want your child to be a good student or participate in the arts, as either a creator or appreciator, you are better off to dance spontaneously to tapes or send him/her outdoors to play than to spend a lot of money on so-called musical software.

Some studies have indicated that many children who are unable to play spontaneously or investigate their world with hands and bodies have difficulty in developing mental abilities, such as understanding abstract verbal concepts.

One root of such higher-level abilities is sequencing. As a child learns to put movement in order, the brain puts words and ideas into logical sequence.

For example, a simple task like hammering - a natural activity for young children - teaches complex sequencing. Throwing and catching are even more complicated because they require more timing and more control.

A child sorting groceries in the kitchen is developing skills of categorization and grasping abstract concepts (the difference between fruits and vegetables, household products and food, etc.).

This three-dimensional, physical experience is different from that of a child who is playing a categorization game on a computer.

Open-ended play with objects (hoops, balls, wood) produces more creativity and a higher level of intelligence.

Toys should be 10 percent toy and 90 percent child. Sales of toys are diminishing dramatically with children older than 7. They are moving into electronics.

We don't have a lot of patience in our culture for just fooling around with stuff.

But brains build themselves by constructing meaningful patterns through experience. The brain learns best by creating meaning. Patterns, relevance, active involvement, reflection and quiet space are things required for a healthy, growing brain.

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Computers are too engaging for the young brain. Software brings to the child someone else's symbols - more abstract ones than she or he is able to develop.

Children don't have pictures in their minds. Computer symbols are over-colored, move too rapidly and are over-stimulating. With computers, children are jerked through space.

The computer puts the child through its paces - the child does not put the computer through its paces. The body and brain are connected. Movement is needed to connect all the senses. You simply don't get that through computers.

We owe our children the concern to monitor screen time. After all, we usually are careful about the children we let our kids play with; why would we be any less diligent when offering them an electronic playmate?

Further reading: "The Failure to Connect, How Computers Affect Our Children's Minds for Better or Worse" by Jane Healy. ❖

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Television Viewing

Deborah Anderson
Group Home Provider, Wayne County

Recently I had an occasion to spend several hours one Saturday and several more hours that Sunday in the home of my day care children while helping their mother with a project. Passing through the play room on many occasions I noticed the television was on the entire time I was in the home on both days. Even though the playroom was well equipped with age appropriate toys the boys never picked up anything off the shelves.

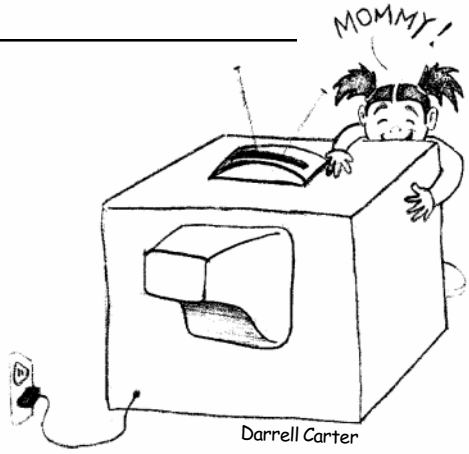
The entire time I spent in their home that weekend both boys were glued to the television, either playing video games that consisted of shooting, killing, kicking, punching or hurting their opponent, or watching programs inappropriate for them to be viewing.

When I brought up the subject of what I thought was excessive television time for the boys with their mother, her response was "Oh I know, but they love it and it keeps them quiet." This is the same parent who on many occasions has discussed some behavior problems her boys display, very aggressive behaviors.

Many television programs and video games contain acts of violence and other behaviors children should not witness.

National studies report the average child in America spends more time viewing television or playing video games than any other activity.

The effect television and video games have on children is enormous, all we have to do is look around us at our children today. At no time in history have American children been so overweight. One of the factors contributing to this problem is the lack of



physical activity in our children's lives. By allowing our children to spend so much sedentary time in front of a television we are creating children who would rather watch the game instead of participate. Most of these children are loners, preferring to watch a movie or play a video game.

Children learn by example. What behaviors are children learning from some of the inappropriate television programs they are watching? Television viewing that contains physical and or emotional violence has a direct bearing on children's social and emotional growth.

I'm not saying all television is bad for children. I'm saying what children watch or play on a television set should be supervised by an adult, such as a parent or caregiver. Television viewing for children should be limited at home and in the day care setting. Television should not be the main focal point in a child's day. The effect television has on children depends on whether we adults, parents and caregivers alike monitor what children are viewing at home as well as in the day care setting.

Television should not be a regular part of any day care curriculum. It does nothing to enhance a child's social, emotional, or physical development. ❖

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News From FIA

SERVICES TO CHILDREN WITH DISABILITIES, SUSPECTED DISABILITIES OR DEVELOPMENTAL DELAYS

Two new resources are available for families and Child Care Providers to enhance services to children with disabilities, suspected disabilities or developmental delays.

1. A State Interagency Agreement (IAA) to Enhance Services to Children with Disabilities was finalized 2-18-99. The Following Agencies and Organizations are involved: Michigan Department of Education, the Michigan Family Independence Agency and the United States Department of Health and Human Services/Administration for Children and Families (HHS/ACF) (Regions V, Migrant, and American Indian). This agreement is available on-line at the Office of Special Education and Early Intervention Services (OSE/EIS) web site at:

http://www.mde.state.mi.us/off/sped/

How can the Agreement be utilized at the local level?

- Show your local agencies that collaboration is occurring at the state level between key agencies that serve children with disabilities.
- Provide the Agreement to your local school district contacts as a way to "open the door" to collaboration or to energize an ongoing relationship.
- Use the Agreement as a model when developing/revising interagency agreements locally.
- Share the Agreement with the chair of your county's Local Interagency Coordinating Council or with the Multi-Purpose Collaborative body in your area.

2. The State Interagency Coordinating Council formed a new standing committee, "Partnerships with Early Childhood Programs," responsible for implementing the State Interagency Agreement.

How can the *Partnerships With Early Childhood Programs Committee* help families and Child Care Providers?

State-level agency representatives serve on this committee and are available to act as a sounding board for families and local providers of services for children birth to five. The committee meets regularly to:

- Identify and define common issues like transitions and inclusion;
- Review and recommend policy proposals related to such issues;
- Facilitate training and access to resources for related activities; and
- Support local and regional planning and coordination.

Please call Jean Garratt at (517) 548-2100 or Jani Kozlowski at (517) 353-5201 if you wish to (1) obtain a printed copy of the State Interagency Agreement; or (2) bring an issue to the Partnerships with Early Childhood Programs Committee for Discussion or problem-solving.

All licensed day care centers and group homes have received a copy of The ABCs of Safe and Healthy Child Care. If you need additional copies, please contact Kathi Pioszak at (517) 335-6186.

This publication provides topical information regarding young children who are cared for in licensed child care settings. We encourage child care providers to make this publication available to the parents of the children in care or to provide them with the internet address so they may receive their own copy.

Issue 43 and beyond are available on the internet.

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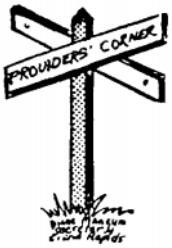


20 Minutes Is Too Long To Wait

Merri Carpenter
Group Home Provider Kent County

Rachel is one proof of this; thank god everything turned out. If I had waited the full 20 minutes to check on her, she would be dead!

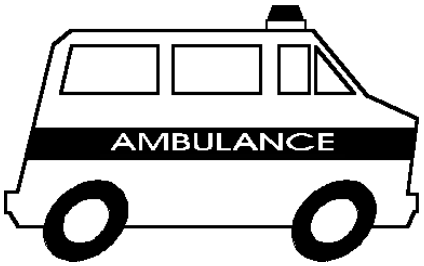
It all started Tuesday, April 13th, a day neither Rachel's parents nor I will ever forget. You see, everything was fine. Rachel was as happy as she always was, but she didn't feel good. Being only 3 1/2 months old she couldn't tell us this. It was about 2:30 p.m. and Rachel was ready for a bottle. I fed and burped her just as I always have in the past. She was happy, laughing and cooing. All the other children were taking their naps. Rachel and one other baby were up. We played and played until Rachel was tired.

Knowing that Rachel's Grandma would be coming soon I decided to lay her down. When Grandma came, I'd put her in her car seat without waking her up and off she'd go, or so I thought. About 15 minutes after Rachel laid down, Grandma came for her. I told Grandma I'd go get her so I went upstairs into the bedroom.

As I reached down to pick up Rachel, I noticed that her lips were blue. I brought her closer to me and noticed her whole face was blue. My first word was "No!" I felt for a pulse. There was none. I screamed "Call 911!" I gave her 2 breaths as I ran down the stairs and began chest compressions. My husband Roy yelled, "What's wrong?" With one look he knew. He dialed 911 as I continued CPR. Grandma was in shock. "My Rachel! Oh, my Rachel!" Grandma and I had never met before so I couldn't imagine what she was going through. I could feel her close to me. I wanted to say everything was going to be okay but couldn't because I didn't know. I was scared, very scared. I kept saying to myself, "You are not going to die! YOU ARE NOT GOING TO DIE!"

Rachel tried to take a breath, she stopped. I gave her 2 more breaths; she tried again and stopped. I said out loud without thinking that Grandma could hear me, "There is something wrong!" I gave Rachel 2 more breaths and she started breathing with some difficulty. I rubbed her chest to see if she would wake up, but she wouldn't. The police came and the officer took over for me. I asked my other helper, Beth, a teenager who came over after school, to go get the other phone so I could call Rachel's mom. She did and also checked on the other kids. She was great! The police officer listened to Rachel's lungs and stated, "Her lungs are full." I said, "They're what?" She was fine before I laid her down, not one wheeze or cough.

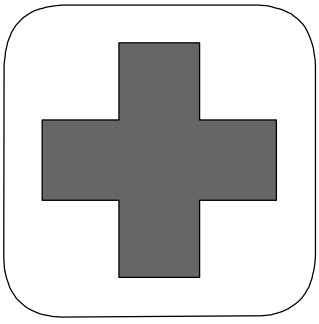
The paramedics came. After they talked to Grandma and me they thought that they were dealing with R.S.V. Rachel was recovering from this just one month ago. The paramedics brought her to the ambulance. I walked around the back to say goodbye to Rachel, but all I saw was panic. I asked, "What's wrong?" They replied. "We need to get her out of here!" Apparently Rachel was still having a hard time breathing. In fact, she stopped breathing two times on the way to the hospital, but they managed to revive her. The doctors said her blood levels were off due to a virus of some sort, but they never found out which one.



All tests came back negative but she was still a very sick little girl.

Rachel is now back in my care, happy as she was before with one little change. Now she is on a monitor to watch her heart and breathing. We give her iron here and Mom gives her vitamins and seizure medicine at home. She is always in my sight right now and I don't know when I will feel comfortable changing that. My rules in day care have also changed. From now on, all babies will sleep on the main floor where I am and be checked every ten to fifteen minutes.

You know, checking the kids a little more often only takes a couple of minutes. For peace of mind, it is worth it. So, when the State asks us to check them often, just do it! The results could be life or death. Make sure your CPR training is up-to-date, so if you have to go through what we did, you will know what to do. Thank you. ❖



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The Most Important Job In the World

Lori Vanderhoef-Hilborn, Group Day Care Provider
Osceola County

In this fast-paced and ever-changing world of computers, finances, politics, medicine and anything else you could think of, what matters most of all? What is, or should be, the most important concern of every person in the world? The care of all our children. Who is caring for our children? Whether the care falls to a stay-at-home parent, a day care provider, a relative, a school or a nanny, the CARE is the most important job in the world

In the future, our children will be the computer technicians, the financiers, the politicians, the doctors, and yes, the future caregivers to human beings. How important is good child care to everyone? It is not only important to the family of the child, but to the world.

Recently, a friend was discussing the low rate of pay in relationship to the importance of the job of child care and other jobs. Her comment has stayed with me. She said, "Parents leaving a child in care is not the same as parking their car in a garage to be picked up at the end of their work day!"

How much do you value or understand this job? How is your child being raised? Are you acknowledging the day-to-day nurturing, the confidence-building, the intelligence-stimulating, the safety and warmth of your child's day?

For those who choose to place their children in the care of another, do you appreciate the opportunity this gives you to pursue your career while being assured your child is cared for in the way you would have your child cared for? Many would say you can't have both a satisfying full-time career and your children raised the way you would yourself. I am of the opinion that you CAN have both, by caring to choose your child care wisely, by taking the time to build a good relationship with your provider, and by appreciating this opportunity you have to partake of the

Continued on page 16

Toddlers - *continued from page 6*

have them at all. Activities should reflect this self-centered developmental stage and not expect the toddler to function in a group.

10. Art activities and sensory opportunities (sand, water, shaving cream, play dough) should be open-ended. Emphasis is on the exploration of the materials (rough, smooth, cold, warm, wet, dry, moldable or runny) and not on an end product.

11. Outdoor play with opportunities to run, jump, pull, push, paint and play with water will help the toddler gain control over his body and see the consequences of his movement.

12. The caregiver needs to be close by and ready to respond when necessary. A toddler's cry needs to be responded to promptly as words are not yet available to him. Adult intervention may or may not be necessary but a tuned in caregiver can prevent biting, assist the toddlers in settling their own disputes, and model the behavior that is desired.

13. Get down on the floor and into the water, sand, toys, etc. with the children. Use words to expand the play.

14. Use the opportunity of working with the toddler in a group to teach the concepts of taking turns and cooperation. These skills come slowly, but with kind guidance will emerge.

Toddlerhood is a time of exciting growth and change. It takes an informed and caring adult to understand the tasks of this developmental stage to safely guide the child. ❖

After 3 - *continued from page 7*

solve interpersonal difficulties.

- Use the emerging interests of children to stimulate their thinking and expand their vocabularies and the understanding of the physical and social environments.
- Plan for all dimensions of development so that the full intellectual potential of each child is stimulated. The arts, literature, physical and social play, and scientific explorations are equally important for broad based intellectual development.
- Help children develop a sense of fairness, of the role of rules in a variety of settings, and a clear understanding of right and wrong.
- Grant youngsters the opportunity to succeed in tasks they set for themselves so that they develop persistence and the respect for work and personal accomplishment.
- Respect the unique aspects of each child so that children can learn to respect and value themselves and others. ❖

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Important Job - *cont. from page 15*

best of both worlds; working and being assured that your child is in the best care. This is not something that can be taken for granted today.

So what is the most important job in the world? Without a doubt it is the care of the world's children. Not only does this job of child-care allow parents to continue operating for the world's interests (careers) but it assures the future of the world's operators: its children. So if you are a provider or care-giving parent, do what it takes to make the children confident and happy. If you are the parent of a child in the care of another, PLEASE ... appreciate and acknowledge the privilege you have and the happiness of your child. Maybe together we can encourage the world's view toward the field of child care to be that of dignity and prestige. Maybe some day the accepted rate of compensation for child-care providers and others in the field will come close to comparing to the importance of their job. ❖

Editors Note: We all look forward to raises and expect to be paid on time. Why should child care professionals be treated any differently?

Resources: Brain Development

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